

## **Overwinter Survey 2012-13: preliminary report on Scottish bee losses.**

We thank all beekeepers who have contributed to this year's overwintering survey. In total, we recorded 323 apiaries (1878 colonies) and the overall loss rate was 26%. The overall failed colonies and those reported as seriously weakened being 39.2%. With respect to the east v west split last year (21.2% versus 4.9%), we found that losses in the east (29.5%) and west (23.7%) were comparable this year due to increased losses in the west. A breakdown of the losses is provided in Table 1 below.

Postcode	Apiaries	colonies	failures	weak	%failed	%failed/weak
AB	16	96	33	17	34.4	52.1
DD	9	55	10	7	18.2	30.9
DG	19	589	104	127	17.7	39.2
EH	46	149	49	26	32.9	50.3
FK	10	42	15	2	35.7	40.5
G	17	60	10	8	16.7	30.0
IV/HS	37	201	52	35	25.9	43.3
KA	29	133	56	17	42.1	54.9
KW	13	76	8	13	10.5	27.6
KY	23	66	20	7	30.3	40.9
ML	3	6	1	0	*N/A	*N/A
PA	47	204	60	7	29.4	32.8
PH	32	125	24	18	19.2	33.6
TD	22	76	19	6	25	32.9

*Table 1. Record of colony data submitted and loss rate across Scotland, listing according to postcode. (\*Not applicable due to small number of responses).*

It is noteworthy to compare the failures rates in 2011-12 (numbers in brackets) to those in 2012-13, where we have seen major increases in losses in EH 32.9% (5.8%), FK 35.7% (13.3%), G 16.7% (5.6%), KA 42.1% (7.8%) and PA 19.2% (6.5%). In contrast, no significant increases in KY 30.3% (31.0%) and TD 25% (18.7%) were observed.

Surprisingly, the increased overwintering losses do not correlate with Varroa mite load (Table 2). The number of apiaries (A-) and colonies (C-) that we received data on colonies having; heavy loads (A-19, C-97) where this was a problem, medium loads (A-212, C-1105) where this was controlled and light loads (A-34, C-104) where treatment was not essential. In addition, we are pleased that we also received records from colonies without Varroa (A-36, C-159). The losses did not increase with Varroa load in the apiary, even at problem levels, suggesting that beekeepers are doing an excellent job controlling this risk to honeybee health but we are aware the reasons for this finding will be complex. Curiously, the Varroa load appears to be inversely correlated to overwintering failures and this will require further investigation.

colony	Apiary Varroa load			
	Heavy	Medium	Light	None
% lost	24.7	28.8	35.6	12.6
% lost/weak	44.3	43.7	46.2	22.6

*Table 2. Colony losses recorded in relation to Varroa infestation levels.*

Interestingly, the total number of weak/lost colonies are similar implying that where Varroa is present, weak colonies have succumbed for some unknown reason. As expected, colonies without Varroa have fared much better, but this may also be due in part to their location within more remote landscapes without agrochemical use and with more diverse forage available. Interestingly, colonies having access to gardens have not benefited in the same way, with losses being unaffected by access to urban areas.

This year, there is no apparent correlation of colony losses with oilseed rape (OSR), with losses being recorded as being 27.0% (-OSR) versus 21.3% (+OSR) and the number of weak colonies being similar too (40.1 and 42.4% respectively). Of course, neonicotinoids are used in other situations and have been reported to accumulate in the soil from use in previous seasons. Similarly, many other pesticides are also used widely and their effects remain unknown.

The most likely cause for the increased losses in the west may be the long winter following a poor summer forage. However, more detailed analyses will be required before this speculation can be confirmed, especially as the impact on honeybee colonies appears to be uneven. A more detailed interrogation of the results will follow and SBA members will be kept informed. We thank all those who have contributed and hope that you will all do so again next year, following a perfect summer.

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